

West Fertilizer Plant Explosion

Debris Management Planning Concepts
Considerations and Best Practices

OBJECTIVES AND ASSUMPTIONS

- Goal is to identify a debris management course of action (COA) which will be viable regardless of funding mechanism
- Any and all procurements, permits, documentation, and disposal activities should be done in accordance with all applicable federal, state, local regulations

TYPES OF DEBRIS

| | | Typical Debris Streams | | | | | | | | |
|--------------|-----------------------|------------------------|------------------------------------|---------------------------------------|-----------------|---------------------------------------|-------------|--------------------|-------------------------|------------|
| | | Vegetative | Construction & Demolition (C&D) | Personal Property/ Household Items | Hazardous Waste | Household Hazardous Waste (HHW) | White Goods | Soil, Mud and Sand | Vehicles and Vessels | Putrescent |
| | Hurricanes / Typhoons | Χ | Х | Х | Χ | Х | Х | Х | Х | Х |
| ırs | Tsunamis | Х | Х | Х | Х | Х | Х | Х | Х | Х |
| Disasters | Tornadoes | Χ | Х | Х | Χ | Х | Х | | Х | Х |
| Types of Dis | Floods | Χ | Х | Х | Χ | Х | Х | Х | Х | Х |
| | Earthquakes | | Х | Х | | Х | Χ | Χ | | |
| | Wildfires | Χ | | Х | | Х | Χ | Χ | | |
| | Ice Storms | Χ | | | | Х | | | | |

TYPES OF DEBRIS REMOVAL ISSUES

Public property debris removal:

Is relatively simple since the debris is located on public property or on a right-of-way and does not require permission from the property owner for removal. The public property can include maintained parks, golf courses, etc.

Private property debris removal:

PPDR can include curbside or right of way clearing or more invasive "on property" debris removal and hazard mitigation management practices.

Private property demolition:

Is the most complicated debris removal category due to the volume of documentation required and the necessary involvement of many different stakeholders.

Construction and Demolition (C/D) Debris:

Damaged components of buildings and structures

- Lumber and wood
- Gypsum wallboard
- Glass
- Metal
- Roofing material
- Tile
- Carpeting and floor coverings
- Window coverings
- Pipe, concrete, fully cured asphalt, equipment
- Furnishings and fixtures

- Household Hazardous Waste (HHW):
 Refers to hazardous products and materials that are used and disposed of by residential, rather than commercial or industrial consumers.
 - HHW includes some paints, stains, varnishes, solvents, pesticides, and other products or materials containing volatile chemicals that catch fire, react, or explode under certain circumstances, or that are corrosive or toxic.

White Goods:

White goods are defined as discarded household appliances such as refrigerators, freezers, air conditioners, heat pumps, ovens, ranges, washing machines, clothes dryers, and water heaters. Consider freon capture.

Non-Ferrous:

Recycling that includes construction and/or HVAC copper, aluminum and brass components.

• Electronic waste, or e-waste:

Recycling of electronics that contain hazardous materials such as cathode ray tubes, televisions, computers, stereos, etc.

- Tires
- Batteries

IDENTIFIED WASTE STREAMS

- Debris operations are concentrated in the city
- Two readily identifiable waste streams exist:
 - Curbside / Right of Way (ROW)
 - Demolition of Structures

DEMOLITION ASSESSMENT

Housing Assessment for City of West/McLennan County:

The state estimates that the City of West has 700 housing units, not including the skilled nursing homes that were damaged in the blast. On Saturday April 20, a joint state/FEMA and Small Business Administration damage assessment was conducted with the following results (also see table below):

- 1. 350 homes impacted
- 2. 142 were destroyed
- 3. 51 received major damage
- 4. 27 received minor damage
- 130 were otherwise affected
- West Rest Haven Nursing Home had 128 residents who were evacuated to local and regional care facilities and will be unable to return to the facility, which was destroyed.

| Damages/Current Assessment | | | | | | | | | | | | | | | | |
|----------------------------|-------|------|------|------------|---|------|-----|------------|---|------|------|-------|---|------|------|---|
| Jurisdiction | Homes | | | Businesses | | | | Government | | | | Other | | | | |
| | D | Maj. | Min. | A | D | Maj. | Min | A | D | Maj. | Min. | A | D | Maj. | Min. | A |
| West | 142 | 51 | 27 | 130 | | | | | | | | | | | | |

- Identify Number of Each by Destroyed (D), Major (Maj.), Minor (Min), Affected (A)
- ❖ A total of 350 homes were impacted (296 were single family, 50 were multi-family and 4 were mobile homes)

SURVEY RESULTS FROM "B.O.A.T"

(Building Officials Association of Texas)

Green

3 Houses:

2 (0-1% damage); 1 (10-30% damage)

Yellow – Restricted

117 Houses:

2 (1-10%), 5 (10-30%), 31 (30-60%), 79 (60-100%)

Red – Destroyed

76 Houses

(100% damage)

VOLUME ASSUMPTIONS

Average 1,800 sq ft – approx 508 cy debris per house

Sitrep: 142 destroyed homes / 51 with major damage

Inspectors: 76 destroyed / 117 with structural damage

Additional Potential Public Debris Sources:

- Alternate Care Facility
- Nursing Home
- Schools
- EMS Facility

DEBRIS STREAM #1 CURBSIDE – RIGHT OF WAY

- **Timeline**: Now through Recovery
- Process:
 - Development of RFP/Contracts to manage waste streams
 - Initiate HHW Mission
 - Assumption: TCEQ Approves Old City Landfill
 - Volunteer Assistance

(Process Continued)

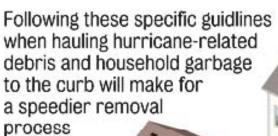
- ID / Procure Contractor for Pickup OR Force Account
 - Self loaders, Skid Steers and Track Hoes
 - Segregation / Sort/Recycle Considerations
 - Labor, Cost Effectiveness, Liability, Monitoring, Safety
 - Staging Area Segregation Location (assumed old city landfill)
 - Disposal final deposition location, permitted, long-term liability
 - Contract Considerations
 - Setup for episodic, turn on turn off
 - Management contract; Comprehensive to handle both waste stream forecasts
 - Follow procurement procedures IAW local, state laws and federal guidance

- Tactics
 - Small Crew
 - Establish working zones
 - Spring Street South within city limits
 - Timelines
- Individual WasteStream Handling

| STREAM | NEIGHBOR HOOD | STAGING LANDFILL |
|-----------------|------------------|---------------------|
| HHW | X | |
| White Good | X | X |
| Non- Ferrous | | X |
| Electronics | X | |
| Tires | | X |
| Batteries | X | |

PICKING UP THE PIECES





CROSSING THE LINE

Any debris placed from the sidewalk toward your property will not be picked up. Contractors cannot collect items on private property.

PROPPING UP

Do not set debris against trees or poles. Doing so makes it harder for cleanup crews to scoop up the items.



CORRECT WAY

Homeowners are being asked to separate debris into the following categories:

HOUSEHOLD GARBAGE

- Bagged trash
- Discarded food
- Packaging, papers
- All garbage should be placed curbside the night before the scheduled weekly pickup.

CONSTRUCTION DEBRIS

- Building materials
- Drywall
- > Lumber
- Carpet > Furniture
- Mattresses
- Plumbing

VEGETATION DEBRIS

- Tree branches
- > Leaves
- Logs

HOUSEHOLD HAZARDOUS WASTE

- > Oils
- Batteries
- Pesticides
- Paints
- Cleaning supplies
- Compressed gas

WHITE' GOODS

- Refrigerators
- > Washers, dryers

HELPFUL HINTS

(B) Share piles with neighbors @ Refrigerator and freezer doors must be secured with duct tape

Limit curbside garbage to two 32-gallon containers or eight trash bags

- > Freezers
- Air conditioners
- Stoves
- Water heaters
- Dishwashers

ELECTRONICS

- Televisions
- Computers
- Radios
- Stereos
- DVD players
- > Telephones

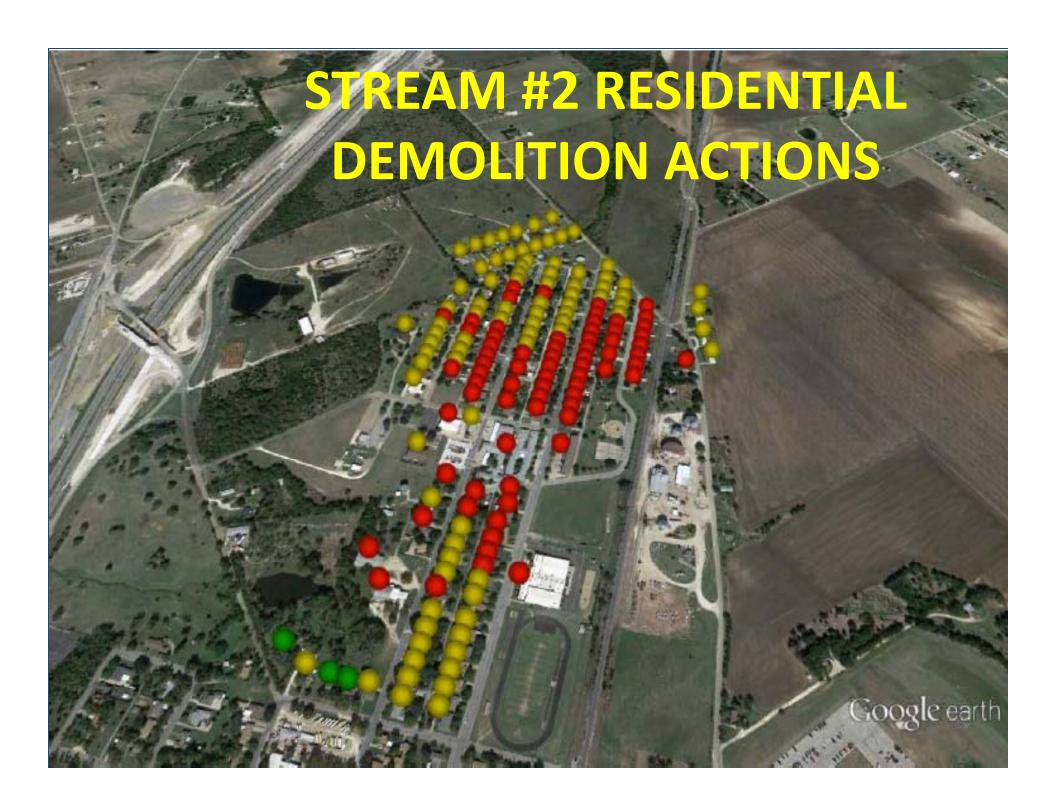
DEBRIS STREAM #2 DEMOLITION

DEMO ACTIONS – STREAM #2

Timeline: Initiate Planning Now - ?

• Process:

- ID Participating Residents
- Bundle / Group properties in Zone 'X' geographically (block to block, alley to alley)
- Execute contracts only do so when we have sufficient number of homes in zone 'X' confirmed for bundled demolition actions
- Phased demolitions develop "citizen block coordination teams" – geographically oriented



DEMO ACTIONS – STREAM #2

- Asbestos Inspections complete abatements as required
- Initiate Demos roll disposal / segregation activities with Stream #1
- Phased Demo
 - Need to track each house; volume house by house
 - Debris Monitors in place
 - Air Monitoring as required by regulation

COURSE OF ACTION CONSIDERATIONS

- The following slides discuss multiple courses of action including level of involvement by the city, county, and citizens
- Depending upon which COA is undertaken; costs and/or timeline will be greatly influenced
- These COAs are subjective and will be driven by decisions from the city and the residents

- Mixed Debris Collection
 - Public is asked to bring all debris to curbside without requirement to sort (mix of general debris, HHW and recycled items)
 - Most convenient to public; simple for volunteers
 - Does not facilitate effective recycling and reduction;
 Requires debris to be handles multiple times
 - Increases operational cost
 - Anticipate that the dumping cost will increase if HHW is not separated

- Source-Segregated Collection (HHW separated)
 - Public is asked to separate HHW debris and Recyclable debris from general debris at curbside
 - Requires more trucks to handle different debris types, but this is offset by more effective recycling and reduction
- White Goods
 - White goods are required to be separated
 - Separated at curb, public tapes it shut at curbside
 - Freon capture where appropriate

HHW COLLECTION CONSIDERATIONS

- Offer multiple separate Household Hazardous Waste (HHW) Events to reduce HHW at curbside
- Offer HHW event for an extended period of time to allow citizens with maximum flexibility to remove HHW from curbside debris
- Use large roll-off bins at central public location
 - Requires staffing and monitoring and appropriate equipment to ensure proper disposal

SUMMARY

- Regardless of funding source waste streams will need to be addressed
- Extensive and comprehensive logistical / tactical coordination is needed (citizens-city / county-state-feds?)
- Need decision on city responsibility for ROW debris
- Cost Effectiveness
 Changing course of action mid-stream = consequences

SUMMARY

- Public Messaging
- Public Participation
- Comprehensive Organization of Entire Operation
 - City / County Responsibilities
 - Community and Citizen Participation
 - Management of Contracts, Tactics and Logistics
 - Documentation of All Costs, Disposal Actions,
 Monitoring Actions, and Timeline

DECISIONS THAT NEED TO BE MADE

- Addressing ROW debris
- Addressing HHW
- Identifying staging and disposal locations
- Identify and communicate what the city will take responsibility for
- Means and method of communication to affected residents



QUESTIONS?